



NFL-lipid nanocapsules for brain neural stem cell targeting in vitro and in vivo

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R��sum�� en anglais	<p>The replacement of injured neurons by the selective stimulation of neural stem cells in situ represents a potential therapeutic strategy for the treatment of neurodegenerative diseases. The peptide NFL-TBS.40-63 showed specific interactions towards neural stem cells of the subventricular zone. The aim of our work was to produce a NFL-based drug delivery system able to target neural stem cells through the selective affinity between the peptide and these cells. NFL-TBS.40-63 (NFL) was adsorbed on lipid nanocapsules (LNC) whom targeting efficiency was evaluated on neural stem cells from the subventricular zone (brain) and from the central canal (spinal cord). NFL-LNC were incubated with primary neural stem cells in vitro or injected in vivo in adult rat brain (right lateral ventricle) or spinal cord (T10). NFL-LNC interactions with neural stem cells were different depending on the origin of the cells. NFL-LNC showed a preferential uptake by neural stem cells from the brain, while they did not interact with neural stem cells from the spinal cord. The results obtained in vivo correlate with the results observed in vitro, demonstrating that NFL-LNC represent a promising therapeutic strategy to selectively deliver bioactive molecules to brain neural stem cells.</p>
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Liens

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